

## MULTI-DIMENSIONAL PATTERN RECOGNITION BY USE OF DIGITAL HOLOGRAPHY

### ABSTRACT

A method and system for performing three-dimensional pattern recognition by use of digital holography is disclosed. The complex amplitude distribution generated by an object is recorded by phase-shifting interferometry. The digital hologram contains information about the objects shape, location, and orientation. This information allows one to perform multi-dimensional pattern-recognition methods with a high degree of discrimination and to measure three-dimensional orientation changes.